

## CURRICULUM VITAE

Virginia Lee Price

Address: Immunex Corporation  
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Date of Birth: January 29, 1952

Citizenship: USA

**Education**

1974 B.S., Bacteriology  
Minor in Chemistry  
Iowa State University  
Ames, Iowa

1979 Ph.D., Microbiology  
Minor in Biochemistry  
Oregon State University  
Corvallis, Oregon

**Positions Held**

1993 - Present Senior Staff Scientist  
Director, Gene Expression  
Immunex Corporation

1988 - 1992 Senior Staff Scientist  
Head, Eukaryotic Expression Division  
Immunex Corporation

1987 - 1988 Senior Staff Scientist  
Immunex Corporation

1984 - 1987 Staff Scientist  
Immunex Corporation

1982 - 1984 Post doctoral Fellow, Service Biochimie  
C.E.N., Saclay, France  
Laboratory of Dr. Andre Sentenac

1979 - 1982 Senior Fellow, Department of Genetics  
University of Washington  
Laboratory of Dr. Jonathan Gallant

### Positions Held. cont.

1979	N.L. Tartar Fellowship Awardee Oregon State University (Postdoctoral)
1975; 1976 - 1979	Research Assistant Oregon State University
1975 - 1976	Teaching Assistant Oregon State University
1974	Biological Aide/Technician National Animal Disease Center Ames, Iowa
1972	National Science Foundation Undergraduate Research Participant Iowa State University

### Publications

1. Price, V.L., and Brown, L.R. (1978). Characterization of a temperature-sensitive RNA mutant of *Bacillus subtilis*. Abstracts of the American Society for Microbiology, p. 1200.
2. Price, V.L., and Brown, L.R. (1981). Transcription, inhibition and the production of guanosine polyphosphates in *Bacillus subtilis*. J. Bacteriol. 147, 752.
3. Price, V.L., and Gallant, J.A. (1982). A new relaxed mutant of *Bacillus subtilis*. J. Bacteriol. 149, 635.
4. Price, V.L., and Gallant, J.A. (1983). Further characterization of the *Bacillus subtilis* rel G mutant: A defect in glucose uptake. J. Bacteriol. 153, 270.
5. Price, V.L., and Gallant, J.A. (1983). The "Glucose Effect" in *Bacillus subtilis*. Eur. J. Biochem. 134, 105.
6. Cottrelle, P., Thiele, D., Price, V.L., Memet, S., Micouin, J.-Y., Marck, C., Buhler, J.-M., Sentenac, A., and Fromageot, P. (1985). Cloning, nucleotide sequence, and expression of one of two genes coding for yeast elongation factor 1 $\alpha$ . J. Biol. Chem. 260, 3090.
7. Cantrell, M. A., Anderson, D., Cerretti, D. P., Price, V., McKereghan, K., Tushinski, R. J., Mochizuki, D. Y., Larsen, A., Grabstein, K., Gillis, S., and Cosman, D. (1985). Cloning, sequence, and expression of a human granulocyte/macrophage colony-stimulating factor. Proc. Natl. Acad. Sci. USA 82, 6250.

Publications. cont.

8. March, C. J., Mosley, B., Larsen, A., Cerretti, D. P., Braedt, G., Price, V., Gillis, S., Henney, C. S., Kronheim, S. R., Grabstein, K., Conlon, P. J., Hopp, T. P., and Cosman, D. (1985). Cloning, sequence and expression of two distinct human Interleukin-1 complementary DNAs. *Nature* 315, 641.
9. Grabstein, K., Mochizuki, D., Kronheim, S., Price, V., Cosman, D., Urdal, D., Gillis, S., and Conlon, P. (1986). Regulation of antibody production *in vitro* by granulocyte-macrophage colony stimulating factor. *J. Mol. Cell. Immunol.* 2, 199.
10. Mosley, B., March, C. J., Larsen, A., Cerretti, D. P., Braedt, G., Price, V., Gillis, S., Henney, C. S., Kronheim, S. R., Grabstein, K., Conlon, P. J., Hopp, T. P., and Cosman, D. (1986). The cloning and expression of two distinct human interleukin-1 (IL-1) cDNAs. In *The Physiologic, Metabolic and Immunological Actions of Interleukin-1*, M. J. Kluger, M. Powanda and J. J. Oppenheim, eds. (New York: Alan R. Liss), pp. 521-532.
11. Grabstein, K. H., Urdal, D. L., Tushinski, R. J., Mochizuki, D. Y., Price, V. L., Cantrell, M. A., Gillis, S., and Conlon, P. J. (1986). Induction of macrophage tumoricidal activity by granulocyte-macrophage colony-stimulating factor. *Science* 232, 506.
12. Gillis, S., Conlon, P. J., Cosman, D., Hopp, T. P., Dower, S. K., Price, V., Mochizuki, D. Y., and Urdal, D. L. (1986). Lymphokines: From conjecture to the clinic. In *Seminars in Oncology*, J. W. Yarbrow, ed. (Orlando: Grune & Stratton), 13 (2), pp. 218-227.
13. Cantrell, M. A., Anderson, D. M., Price, V. L., Deeley, M. C., Libby, R. T., Grabstein, K., Cerretti, D. P., Mochizuki, D. Y., Tushinski, R. J., and Cosman, D. J. (1987). cDNA cloning, expression and activity of human granulocyte-macrophage colony stimulating factor. In *Recombinant Lymphokines and Their Receptors*, S. Gillis, ed. (New York: Marcel Dekker, Inc.), pp. 187-205.
14. Price, V., Mochizuki, D., March, C., Cosman, D., Deeley, M. C., Klinke, R., Gillis, S., Baker, P. E., and Urdal, D. (1987). Expression, purification, and characterization of recombinant murine granulocyte-macrophage colony stimulating factor and bovine IL-2 from yeast. *Gene* 55, 287.
15. Grabstein, K. H., Park, L. S., Morrissey, P. J., Sassenfeld, H., Price, V., Urdal, D. L., and Widmer, M. B. (1987). Regulation of murine T cell proliferation by B cell stimulatory factor-1. *J. Immunol.* 139, 1148.
16. Hopp, T. P., Prickett, K. S., Price, V. L., Liggy, R. T., March, C. J., Cerretti, D. P., Urdal, D. L., and Conlon, P. J. (1988). A short polypeptide marker sequence useful for recombinant protein identification and purification. *Biotechnology* 6, 1204.

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17. Cosman, D., Deeley, M.C., Price, V., Klinke, R., Clevenger, W., Hemenway T., Anderson, D., Sassenfeld, H., and Urdal, D.L. (1988). Human interleukin-3 and granulocyte-macrophage colony stimulating factor: Site-specific mutagenesis and expression in yeast. In 20th IABS Congress on Cytokines: Laboratory and Clinical Evaluation (London) 69, pp. 9-13.
18. Gillis, S., Urdal, D. L., Clevenger, W., Klinke, R., Sassenfeld, H., Price, V., and Cosman, D. (1988). Production of recombinant human colony stimulating factors in yeast. In Colony Stimulating Factors -- CSF, F.R. Seiler and H.G. Schwich, eds., Behring Inst. Mitt. 83, 1-7.
19. Park, L. S., Friend, D., Price, V., Anderson, D., Singer, J., Prickett, K. S., and Urdal, D. L. (1989). Heterogeneity in human interleukin-3 receptors. A subclass that binds human granulocyte/macrophage colony stimulating factor. *J. Biol. Chem.* 264, 5420.
20. Park, L. S., Waldron, P. E., Friend, D., Sassenfeld, H. M., Price, V., Anderson, D., Cosman, D., Andrews, R. G., Bernstein, I. D., and Urdal, D. L. (1989). Interleukin-3, GM-CSF, and G-CSF receptor expression on cell lines and primary leukemia cells: Receptor heterogeneity and relationship to growth factor responsiveness. *Blood* 74, 56.
21. Park, L. S., Friend, D., Price, V., Anderson, D., Singer, J., Prickett, K. S., and Urdal, D. L. (1989). Heterogeneity in human interleukin-3 receptors. A subclass that binds human granulocyte/macrophage colony stimulating factor. *J. Biol. Chem.* 264, 5420.
22. Urdal, D. L., Price, V., Sassenfeld, H. M., Cosman, D., Gillis, S., and Park, L. S. (1989). Molecular characterization of colony-stimulating factors and their receptors: Human interleukin-3. In *Molecular and Cellular Controls of Hematopoiesis*. Annals of the New York Academy of Sciences. 554, 167.
23. Beckmann, M. P., Munger, W. E., Kozlosky, C., VandenBos, T., Price, V., Lyman, S., Gerard, N. P., Gerard, C., and Cerretti, D. P. (1991). Molecular characterization of the rabbit IL-8 receptor. *Biochem. Biophys. Res. Comm.* 179, 784.
24. Curtis, B. M., Williams, D. W., Broxmeyer, H. E., Dunn, J., Farrah, T., Jeffery, E., Clevenger, W., deRoos, P., Martin, U., Friend, D., Craig, V., Gayle, R., Price, V., Cosman, D., March, C. J., and Park, L. S. (1991). Enhanced hematopoietic activity of a human granulocyte/macrophage colony-stimulating factor-interleukin 3 fusion protein. *Proc. Natl. Acad. Sci. USA* 88, 5809.

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25. Gearing, D. P., Thut, C. J., VandenBos, T., Gimpel, S. D., Delaney, P. B., King, J., Price, V., Cosman, D., and Beckmann, M. P. (1991). Leukemia inhibitory factor receptor is structurally related to the IL-6 signal transducer, gp130. *EMBO J.* 10, 2839.
26. Gearing, D. P., Thut, C. J., VandenBos, T., Gimpel, S. D., Delaney, P. B., King, J., Price, V., Larsen, A., Cosman, D., and Beckmann, M. P. (1992). Expression cloning of a receptor for the leukaemia inhibitory factor. In *Molecular Biology of Haematopoiesis. Proceedings of the International Conference on Molecular Biology of Haematopoiesis, July 1991, Innsbruck, Austria*, N. G. Abraham, G. Konwalinka, P. Marks, L. Sachs and M. Tavassoli, ed. (Andover: Intercept Ltd.), pp. 131-136.
27. Jefferey, E., Price, V., and Gearing, D.P. (1993). Close proximity of the genes for leukemia inhibitory factor and oncostatin M. *Cytokine* 5, 107.